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JUMBO MINING COMPANY
6305 Fern Spring Cove
Austin, Texas 78730

DEAD OF LAND MANAGEMENT

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FEB 13 1992

DIVISION OF
OIL GAS & MINING
Mr. Rody Cox
Bureau of Land Management
House Range Resource Area
15 East 500 North
Fillmore, Utah 84631

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INFO. ACTION INITIAL
February 7, 1992
Vern Springs A.M. 420792

House Range A.M.

Rody

RE: Additional information re-
quested in ~~operation letter 12/24/91~~
for new ~~heap~~ leach pad H-10,
Drum Mine

Dear Mr. Cox:

The following information is being submitted as requested in the BLM's letter dated 12/24/91.

WATER BALANCE PROJECTION

The proposed leach agent application of 3.8 million gallons calculated by CBC Enviro is not correct. Jumbo supplied CBC with the maximum application rate of 2 gal/400 sq ft/minute in order for them to calculate the total weight and hydraulic head on the liner and base at any given time. CBC mistakenly assumed we would sprinkle the entire heap (12 acres) at the maximum rate and thus calculated 3.8 million gallons. Our carbon recovery system has a maximum capacity of 1.0 million gallons per day. Therefore, our leach agent application rate will be no more than 1.0 million gallons per day or 720 gal/min.

Pad draindown volume at the Drum Mine has been measured in the past to be approximately 35-40% of the application rate for the first 24 hours and total pad draindown was calculated at 60% of the application rate which would give a maximum draindown of 0.6 million gallons.

Snow usually does not accumulate in areas under sprinkling since the solution melts the snow unless temperatures are subfreezing and then sprinklers are shut off to prevent ice buildup. In any event a 6 inch snowpack with 15% moisture content would amount to 0.3 million gallons for the new pad area.

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In summary, the water balance projection for the new heap is as follows:

Leach application solution-----	1.0 million gal.
Complete pad draindown volume-----	0.6 million gal.
Snow melt volume-----	0.3 million gal.
100 year storm event-----	0.6 million gal.

TOTAL-----	2.5 million gal.
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The water balance projection of 2.5 million gallons is well within the capacity of the ponds which have a storage of 4.2 million gallons.

CONSTRUCTION PRACTICES AND MINIMUM REQUIREMENTS FOR LEACH PADS

A QA/QC (quality assurance/quality control) report will be compiled by our consulting engineering firm in order that construction practices will be followed and the liner/pad installed correctly. A copy will be sent to the BLM when they have finished the report.

The following minimum requirements for the liner will be followed:

- A. The leach pad will be doubled lined.
- B. A direct leak detection system has been designed by our consultants.
- C. Diversion ditches will be placed upslope from the pad to prevent runoff from entering the pad area.
- D. A perched water table exists beneath the pad but does not surface anywhere. A drain trench will be constructed downslope from the new pad area in order to drain and monitor the perch water table.
- E. The hydraulic head on the liner will be minimized and will be discussed by our consultants in their final draft for the pad design.
- F. The static loading analysis and seismic stability analysis will also be discussed by our consultants in their final draft.

Specifications of minimum requirements for our new pad have

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already been submitted to the BLM in the CBC Enviro report or will be submitted in the final draft by our consultants.

SPILL CONTINGENCY PLAN

A. Agencies to notify if a spill of sodium cyanide of 10 pounds or more occurs:

1. State Emergency Response Commission.
2. Six County Commission Organization (local emergency commission)
3. Local fire department
4. Bureau of Land Management
5. Division of Water Quality (within 24 hours)
6. Department of Oil, Gas and Mining

B. Containment procedures and facilities. All cyanide will be stored in sealed barrels on top of a PVC liner and inside a chain link fence (see fig. 1). The PVC liner will be placed next to the mixing tank and will be constructed so that any spill will flow into the barren pond and be contained within our closed system solution circuit.

A spill contingency plan for any solution leaks from our new pad was submitted in our letter dated Sept. 11, 1991. The new pad will be built with a leak detection system which will contain all leaks.

C. Available list and location. Equipment at the site consists of two rotary drills, three 35-ton haul trucks, three front-end loaders, two dozers, one water truck and various support vehicles, pumps, etc. The equipment is located just north and east of the strip plant and lab shown on figure 1.

D. Location of sensitive areas. The nearest domestic source of water lies approximately 25 miles to the southeast in the farming area of Abraham. As already been submitted in our baseline hydrologic data, the ground water beneath the Drum Mine flows to the northwest towards Fish Springs and eventually to Bonneville Salt Flats where there are no domestic water sources or fisheries.

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E. Neutralization/treatment procedures. Should there be an accidental spill of the cyanide pellets outside the liner system the following procedures will take place:

1. Lime from the bulk trailer (see fig. 1) will be placed upon the spill to prevent any gas from being created.
2. The front-end loaders and haul trucks will load and haul the pellets and at least one foot of underlying soil. The soil and cyanide will be placed on top of our heap where the cyanide will dissolve and thus be contained within the closed circuit.
3. Samples from the underlying soil will be analyzed in our lab immediately in order to determine if more soil removal is needed.
4. A berm will be constructed around the spill area to prevent any rain runoff from entering.

Tier II reports of reagent inventory are submitted annually to the Utah Division of Environmental Response and Remediation (State Emergency Response Commission) with copies sent to the local fire department and the local Emergency Planning Committee.

F. Monitoring actions. Once it has determined that all contaminated soil has been hauled and placed on top of the heap, monitoring of the spill area will commence and continue during the life of the mining operation and post mining monitoring of the entire site. Monitoring will consist of monthly sampling of the soil at the spill site and downslope of the site for the first year and then quarterly sampling thereafter. If cyanide is detected in any sample, then shallow drilling will commence to determine the extent of migration.

G. Public notification. In the event of a cyanide spill at the mine, the public will be notified in the local newspaper.

H. Documentation and reporting. After the initial notification to the various agencies, all procedures to the containment and treatment of the spill will be kept in a log book maintained by Jumbo and will be made available to the agencies along with a written report. Once the cleanup is completed, a monitoring log will be kept and copies with

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analytical results will be sent to BLM, Div. of Water Quality, DOGM, etc. on a quarterly basis.

NEUTRALIZATION PLAN

A. Spent ore heaps will be neutralized to a sustained level of <0.22 mg/l WAD and a pH between 6.0 and 9.0. in the effluent.

B. No tailings will be generated in our mining plan, therefore, items 5.B and 5.C in the BLM letter dated 12-24-91 need not be answered.

Measurements will be taken at the southeast corner where the water would discharge into the environment. Metal levels and other constituents will meet federal maximum contaminant levels or applicable State requirements.

Any heavy metals or other hazardous wastes that may be generated will have a tendency to collect on the carbon or in the pond sludge. The carbon will be transported off the minesite and sold to a permitted refinery. The pond sludge will be sampled and Meteoric Water Mobility Tests performed to determine if any contaminants or heavy metals exist. If no hazardous waste or heavy metals exist over the acceptable limits, then the sludge will be mixed with cement and buried in place. If the sludge contains heavy metals or contaminants above the allowable limits, it will either be neutralized to acceptable limits or shipped offsite to a permitted hazardous waste dump.

MONITORING PLAN

A/B. A perched water table drain trench and the leak detection system will be used as our monitoring point(s) as an alternative to monitoring wells. The trench was suggested by the Division of Water Quality and approved by the BLM in the letter dated 1/08/92.

C. No surface water occurs at the minesite, therefore, no surface water monitoring points will be needed.

D. No domestic or developed water supply exists at the minesite or nearby.

E. A copy of the Division of Water Quality's Ground Water Discharge Permit (Draft) is being submitted with this letter. Since the perched water table has been partially contaminated from previous mining activities, the Division of

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Water Quality has approved that our leak detection system will be our monitoring point(s). The leak detection system will be checked daily and logged. If liquid is present, then (1) the Division of Water Quality will be notified within 24 hours and (2) a sample will be collected, sent to an outside lab to be analyzed for major ions (Chloride, Sulfate, Carbonate, Bicarbonate, Sodium, Potassium, Magnesium and Calcium), TDS, Gold, Cyanide, Arsenic, Iron, Lead and Zinc with the results supplied to the Division within 21 days.

The water in the perched aquifer drain trench will be sampled monthly and analyzed for the same parameters with the results reported quarterly.

To insure quality control, water analysis will be conducted by an outside lab using their pre-treated bottles and to assure testing is in accordance with procedures specified under UAC R448-6.3.A.13 (Division of Water Quality).

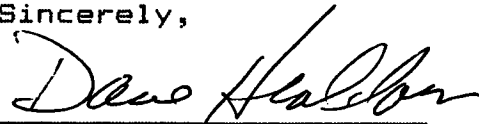
Reporting schedule to the BLM will be the same as to the Division of Water Quality--April 15, July 15, Sept. 15 and Jan. 15.

No threshold levels for remedial action have been indicated by the Division of Water Quality but will probably be 25-50% of drinking water standards.

E. Soil samples will be collected prior to construction of the heap and analyzed for maximum metal loading. After heap construction, samples will be collected quarterly and analyzed for the same parameters as for water (see above). Subsequent samples will be collected to determine the remaining capacity of metal loading. Quarterly reports will be sent to the BLM.

Jumbo would appreciate if the BLM would expedite this amendment as soon as possible in order for us to get started this season. If you have any questions, please contact me at the Drum Mine.

Sincerely,



Dave Hartshorn
Drum Mine Manager

CYANIDE STORAGE MAP

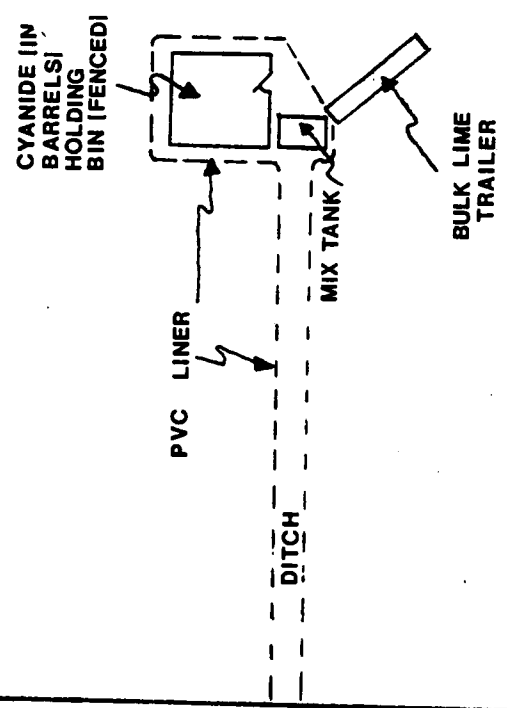
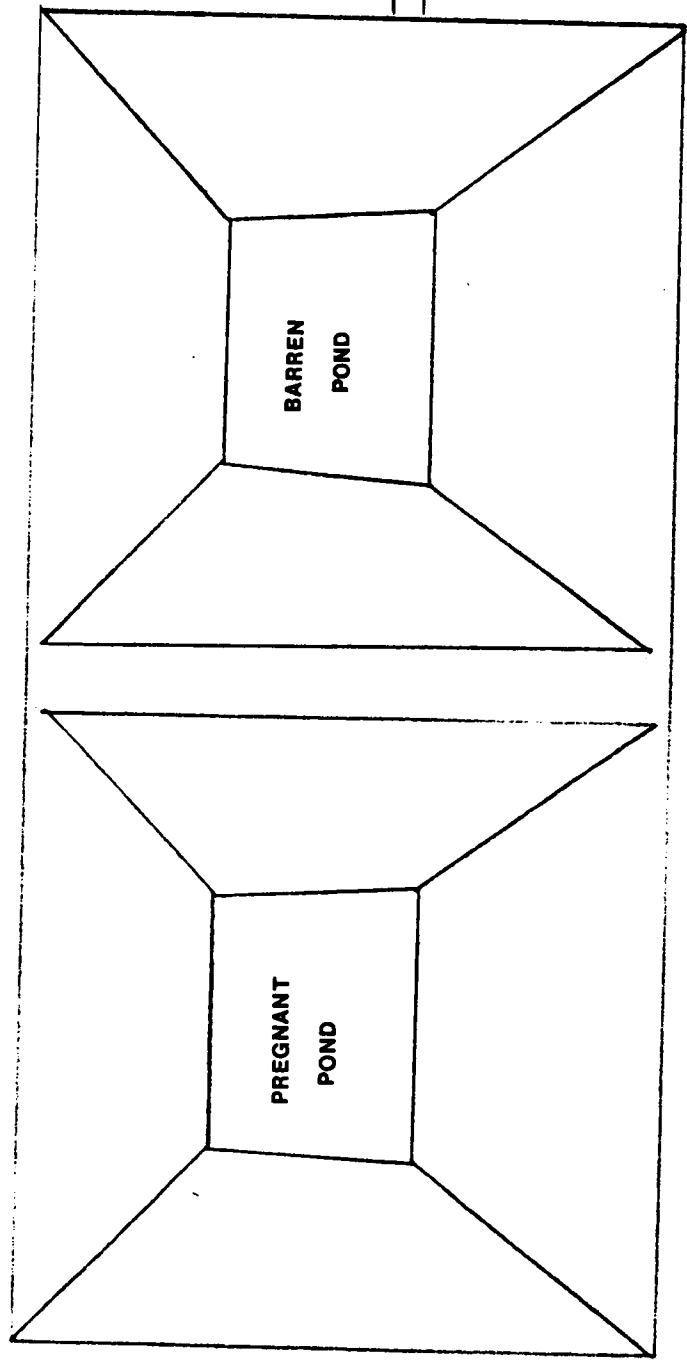
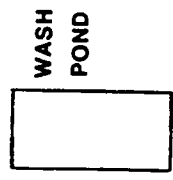
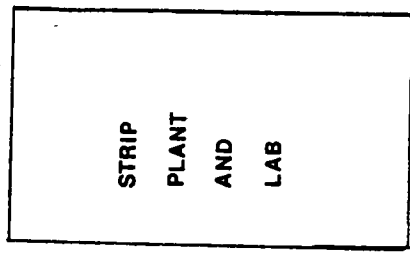


FIG.1